



Measure Information

This document contains the information submitted by measure developers/stewards, but is organized according to NQF's measure evaluation criteria and process. The item numbers refer to those in the submission form but may be in a slightly different order here. In general, the item numbers also reference the related criteria (e.g., item 1b.1 relates to sub criterion 1b).

Brief Measure Information

NQF #: 3728

Corresponding Measures:

Measure Title: Skilled Nursing Facility Healthcare-Associated Infections Requiring Hospitalization (SNF HAI)

Measure Steward: Centers for Medicare & Medicaid Services

sp.02. Brief Description of Measure: SNF HAI is a one-year outcome measure that estimates the risk-standardized rate of healthcare-associated infections (HAIs) that are acquired during SNF care and result in hospitalization. HAIs that are acquired during SNF care and result in hospitalization are identified using the principal diagnosis on residents' Medicare inpatient claims. The hospitalization must occur during the period beginning on day four after SNF admission and within three days after SNF discharge. The measure is risk-adjusted to allow for comparison based on residents with similar characteristics across SNFs. Since HAIs are not considered never-events, the measure's objective is to identify SNFs that have higher HAI rates than their peers. The risk-adjusted HAI rate for each SNF is the product of the standardized risk ratio (SRR) for a given SNF and the national average observed rate of HAIs for all SNFs. The SRR is a provider-level ratio that measures excess HAIs by comparing the predicted HAIs of the provider being measured to the expected number of HAIs for an average provider with the same patient case-mix. Overall, lower SNF HAI scores indicate better infection control and prevention among SNF providers.

1b.01. Developer Rationale:

sp.12. Numerator Statement: The measure numerator is the number of stays with an HAI acquired during SNF care and resulting in an inpatient hospitalization. The hospitalization must occur during the period beginning on day four after SNF admission and within three days of SNF discharge.

sp.14. Denominator Statement: The study population includes Medicare Part A fee-for-service (FFS) SNF stays that were admitted during the measure time period (one year) and that meet the inclusion criteria during the measurement period.

sp.16. Denominator Exclusions:

SNF stays are excluded from the denominator if they meet one or more of the following criteria: (i) residents who are less than 18 years of age at the time of admission; (ii) the SNF length of stay was shorter than four days; (iii) residents who were not continuously enrolled in Part A FFS Medicare during the SNF stay, 12 months prior to the measure period, and three days after the end of the SNF stay; (iv) residents who did not have a Part A short-term acute care hospital stay within 30 days prior to the SNF admission date (the short-term stay must have positive payment and positive length of stay); (v) residents who were transferred to a federal hospital from the SNF as determined by the discharge status code on the SNF claim, (vi) residents who received care from a provider located outside of the United States, Puerto Rico, or a United States territory as determined from the first two

characters of the SNF CCN; (vii) SNF stays in which data were missing on any variable used in the measure construction or risk adjustment, (viii) stays where Medicare did not pay for the stay resulting in a non-positive payment on the SNF claim, and (xi) swing bed stays in critical access hospitals. Refer to **Table 1** to reference the rationale behind each exclusion criterion.

Table 1. Exclusion Criteria and Rationale for SNF HAI Measure

Exclusion	Rationale
Resident is less than 18 years old at time of SNF admission.	Residents under 18 years old are not included in the target population for this measure because there are few pediatric SNF residents and they may have different patterns of care than adults.
The SNF length of stay was shorter than four days.	HAIs that require hospitalization beginning day four after SNF admission will be identified as SNF HAIs. This helps exclude pre-existing infections from the measure numerator. By construction, SNF stays shorter than four days are not long enough to identify SNF HAIs.
Residents who were not continuously enrolled in Part A FFS Medicare during the SNF stay, 12 months prior to the measure period, and three days after the end of SNF stay.	Certain risk adjustment elements for this measure require information on acute inpatient claims for one year prior to the SNF admission, and acute care utilization must be observable in the observation window following discharge. Residents without Part A coverage or who are enrolled in Medicare Advantage plans will have incomplete inpatient claims.
Residents who did not have Part A short-term acute care hospital stay within 30 days prior to the SNF admission date. The short-term stay must have positive payment and positive length of stay.	This measure requires information from the prior short-term acute care hospital stay in the elements used for risk adjustment.
Residents who were transferred to a federal hospital from the SNF as determined by the discharge status code on the SNF claim.	Residents who are transferred to federal hospitals will have incomplete inpatient claims.
Residents who received care from a provider located outside of the United States, Puerto Rico, or a U.S. territory as determined from the first two characters of the SNF CMS Certification Number.	Residents who received care from foreign providers may have incomplete inpatient claims, and these providers may not be subject to the same policy decisions related to the measure outcome.
SNF stays in which data were missing on any variable used in the measure construction or risk adjustment. This also includes stays where Medicare did not pay for the stay, which is identified by non-positive payment on the SNF claim.	The measure calculation requires accurate and complete information from the SNF stay, prior short-term acute-care hospital stays, and resident characteristics used for risk adjustment.
SNF stays where Medicare did not pay for the stay resulting in a non-positive payment on the SNF claim.	The stay was not covered under Medicare Part A.
SNF stays from swing beds in critical access hospitals.	Critical access hospitals are not required to submit quality data under the SNF QRP. Therefore, claims-based quality measures exclude swing bed stays in critical access hospitals.

Measure Type: Outcome

sp.28. Data Source:

Claims

sp.07. Level of Analysis:

Facility

IF Endorsement Maintenance – Original Endorsement Date:

Most Recent Endorsement Date:

IF this measure is included in a composite, NQF Composite#/title:

IF this measure is paired/grouped, NQF#/title:

sp.03. IF PAIRED/GROUPED, what is the reason this measure must be reported with other measures to appropriately interpret results?:

1. Importance to Measure and Report

Extent to which the specific measure focus is evidence-based, important to making significant gains in healthcare quality, and improving health outcomes for a specific high-priority (high-impact) aspect of healthcare where there is variation in or overall less-than-optimal performance. Measures must be judged to meet all sub criteria to pass this criterion and be evaluated against the remaining criteria

Please separate added or updated information from the most recent measure evaluation within each question response in the Importance to Measure and Report: Evidence section. For example:

Current Submission:

Updated evidence information here.

Previous (Year) Submission:

Evidence from the previous submission here.

1a.01. Provide a logic model.

Briefly describe the steps between the healthcare structures and processes (e.g., interventions, or services) and the patient's health outcome(s). The relationships in the diagram should be easily understood by general, non-technical audiences. Indicate the structure, process or outcome being measured.

[Response Begins]

[Response Ends]

1a.02. Provide evidence that the target population values the measured outcome, process, or structure and finds it meaningful.

Describe how and from whom input was obtained.

[Response Begins]

[Response Ends]

1a.03. Provide empirical data demonstrating the relationship between the outcome (or PRO) and at least one healthcare structure, process, intervention, or service.

[Response Begins]

[Response Ends]

1b.01. Briefly explain the rationale for this measure.

Explain how the measure will improve the quality of care, and list the benefits or improvements in quality envisioned by use of this measure.

[Response Begins]

[Response Ends]

1b.02. Provide performance scores on the measure as specified (current and over time) at the specified level of analysis.

Include mean, std dev, min, max, interquartile range, and scores by decile. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities include. This information also will be used to address the sub-criterion on improvement (4b) under Usability and Use.

[Response Begins]

[Response Ends]

1b.03. If no or limited performance data on the measure as specified is reported above, then provide a summary of data from the literature that indicates opportunity for improvement or overall less than optimal performance on the specific focus of measurement. Include citations.

[Response Begins]

[Response Ends]

1b.04. Provide disparities data from the measure as specified (current and over time) by population group, e.g., by race/ethnicity, gender, age, insurance status, socioeconomic status, and/or disability.

Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included. Include mean, std dev, min, max, interquartile range, and scores by decile. For measures that show high levels of performance, i.e., “topped out”, disparities data may demonstrate an opportunity for improvement/gap in care for certain sub-populations. This information also will be used to address the sub-criterion on improvement (4b) under Usability and Use.

[Response Begins]

[Response Ends]

1b.05. If no or limited data on disparities from the measure as specified is reported above, then provide a summary of data from the literature that addresses disparities in care on the specific focus of measurement. Include citations. Not necessary if performance data provided in above.

[Response Begins]

[Response Ends]

2. Scientific Acceptability of Measure Properties

Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. Measures must be judged to meet the sub criteria for both reliability and validity to pass this criterion and be evaluated against the remaining criteria.

sp.01. Provide the measure title.

Measure titles should be concise yet convey who and what is being measured (see [What Good Looks Like](#)).

[Response Begins]

Skilled Nursing Facility Healthcare-Associated Infections Requiring Hospitalization (SNF HAI)

[Response Ends]

sp.02. Provide a brief description of the measure.

Including type of score, measure focus, target population, timeframe, (e.g., Percentage of adult patients aged 18-75 years receiving one or more HbA1c tests per year).

[Response Begins]

SNF HAI is a one-year outcome measure that estimates the risk-standardized rate of healthcare-associated infections (HAIs) that are acquired during SNF care and result in hospitalization. HAIs that are acquired during SNF care and result in hospitalization are identified using the principal diagnosis on residents' Medicare inpatient claims. The hospitalization must occur during the period beginning on day four after SNF admission and within three days after SNF discharge. The measure is risk-adjusted to allow for comparison based on residents with similar characteristics across SNFs. Since HAIs are not considered never-events, the measure's objective is to identify SNFs that have higher HAI rates than their peers. The risk-adjusted HAI rate for each SNF is the product of the standardized risk ratio (SRR) for a given SNF and the national average observed rate of HAIs for all SNFs. The SRR is a provider-level ratio that measures excess HAIs by comparing the predicted HAIs of the provider being measured to the expected number of HAIs for an average provider with the same patient case-mix. Overall, lower SNF HAI scores indicate better infection control and prevention among SNF providers.

[Response Ends]

sp.04. Check all the clinical condition/topic areas that apply to your measure, below.

Please refrain from selecting the following answer option(s). We are in the process of phasing out these answer options and request that you instead select one of the other answer options as they apply to your measure.

Please do not select:

- Surgery: General

[Response Begins]

Infectious Diseases (ID)

[Response Ends]

sp.05. Check all the non-condition specific measure domain areas that apply to your measure, below.

[Response Begins]

Safety: Healthcare Associated Infections

[Response Ends]

sp.06. Select one or more target population categories.

Select only those target populations which can be stratified in the reporting of the measure's result.

Please refrain from selecting the following answer option(s). We are in the process of phasing out these answer options and request that you instead select one of the other answer options as they apply to your measure.

Please do not select:

- *Populations at Risk: Populations at Risk*

[Response Begins]

Adults (Age >= 18)

[Response Ends]

sp.07. Select the levels of analysis that apply to your measure.

Check ONLY the levels of analysis for which the measure is SPECIFIED and TESTED.

Please refrain from selecting the following answer option(s). We are in the process of phasing out these answer options and request that you instead select one of the other answer options as they apply to your measure.

Please do not select:

- *Clinician: Clinician*
- *Population: Population*

[Response Begins]

Facility

[Response Ends]

sp.08. Indicate the care settings that apply to your measure.

Check ONLY the settings for which the measure is SPECIFIED and TESTED.

[Response Begins]

Post-Acute Care

[Response Ends]

sp.09. Provide a URL link to a web page specific for this measure that contains current detailed specifications including code lists, risk model details, and supplemental materials.

Do not enter a URL linking to a home page or to general information. If no URL is available, indicate "none available".

[Response Begins]

<https://www.cms.gov/files/document/snf-hai-technical-report.pdf-0>

[Response Ends]

sp.12. Attach the data dictionary, code table, or value sets (and risk model codes and coefficients when applicable). Excel formats (.xlsx or .csv) are preferred.

Attach an excel or csv file; if this poses an issue, [contact staff](#). Provide descriptors for any codes. Use one file with multiple worksheets, if needed.

[Response Begins]

Available in attached Excel or csv file

[Response Ends]

Attachment: 3728_SNF-HAI-NQF-Submission-Attachment-sp12-20230105.xlsx

For the question below: state the outcome being measured. Calculation of the risk-adjusted outcome should be described in sp.22.

sp.13. State the numerator.

Brief, narrative description of the measure focus or what is being measured about the target population, i.e., cases from the target population with the target process, condition, event, or outcome).

DO NOT include the rationale for the measure.

[Response Begins]

The measure numerator is the number of stays with an HAI acquired during SNF care and resulting in an inpatient hospitalization. The hospitalization must occur during the period beginning on day four after SNF admission and within three days of SNF discharge.

[Response Ends]

For the question below: describe how the observed outcome is identified/counted. Calculation of the risk-adjusted outcome should be described in sp.22.

sp.14. Provide details needed to calculate the numerator.

All information required to identify and calculate the cases from the target population with the target process, condition, event, or outcome such as definitions, time period for data collection, specific data collection items/responses, code/value sets.

Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at sp.11.

[Response Begins]

Step 1: To calculate the measure numerator, inpatient readmissions within the specified incubation window are identified; these include readmissions beginning on day four of the SNF stay and within three days of SNF discharge.

Step 2: Next, HAI diagnosis ICD-10 codes on the principal diagnosis field of the readmitting inpatient claim are identified. Only HAI diagnoses marked as present on admission (POA) within the inpatient claim are included in the

measure numerator. Only infections that are likely to be acquired during SNF care and severe enough to require hospitalization are included in the measure numerator. Infections related to invasive (not implanted) medical devices may also be included in the measure numerator. Several infections are excluded, such as chronic infections, infections that typically require a long period of time to present, infections that are likely related to the resident's prior hospital stay, and more. See the *SNF-HAI-NQF-Submission-Attachment-sp12-20230105.xlsx* attachment in section **sp.12** for a full list of ICD-10 codes included in the measure numerator.

Step 3: Following HAI identification, application of the 14-day repeat infection timeframe is determined to exclude infections that are preexisting to the SNF stay from the measure numerator. The repeat infection timeframe is defined as the number of days between inpatient stays, which is calculated by taking the difference between the discharge date of the most proximal inpatient stay prior to SNF admission and the admission date of the readmitting inpatient stay. Preexisting infections are determined using all of the diagnosis codes on the prior inpatient claim immediately preceding the SNF admission. The preexisting infection recorded in the prior proximal hospitalization must be a diagnosis that is related to the HAI recorded in the rehospitalization. Related diagnoses include principal and comorbid ICD-10 diagnoses on the prior hospital claim. If the number of days between the rehospitalization and the prior proximal hospitalization is less than 14 and a preexisting infection is recorded in any of the diagnosis codes for the prior inpatient stay, then the HAI is excluded from the numerator. If the number of days between the rehospitalization and the prior proximal hospitalization is 14 or greater, then the HAI is included in the measure numerator.

[Response Ends]

For the question below: state the target population for the outcome. Calculation of the risk-adjusted outcome should be described in sp.22.

sp.15. State the denominator.

Brief, narrative description of the target population being measured.

[Response Begins]

The study population includes Medicare Part A fee-for-service (FFS) SNF stays that were admitted during the measure time period (one year) and that meet the inclusion criteria during the measurement period.

[Response Ends]

For the question below: describe how the target population is identified. Calculation of the risk-adjusted outcome should be described in sp.22.

sp.16. Provide details needed to calculate the denominator.

All information required to identify and calculate the target population/denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets.

Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at sp.11.

[Response Begins]

To calculate the measure denominator, the number of eligible SNF stays are counted. Stays are constructed using final action Medicare Part A claims. Stay construction begins by linking claims that share the same beneficiary identifier, facility CMS Certification Number (CCN), and admission date. To implement study restrictions and apply risk adjustment, stays created from SNF claims are linked to other Medicare claims and enrollment data using the beneficiary identifier. Once stays are constructed, eligible stays are identified for inclusion in the measure denominator. The eligible stays for this measure are all Medicare FFS SNF stays that do not meet the exclusion criteria. Denominator exclusion criteria are listed below in section **sp.17**.

[Response Ends]

sp.17. Describe the denominator exclusions.

Brief narrative description of exclusions from the target population.

[Response Begins]

SNF stays are excluded from the denominator if they meet one or more of the following criteria: (i) residents who are less than 18 years of age at the time of admission; (ii) the SNF length of stay was shorter than four days; (iii) residents who were not continuously enrolled in Part A FFS Medicare during the SNF stay, 12 months prior to the measure period, and three days after the end of the SNF stay; (iv) residents who did not have a Part A short-term acute care hospital stay within 30 days prior to the SNF admission date (the short-term stay must have positive payment and positive length of stay); (v) residents who were transferred to a federal hospital from the SNF as determined by the discharge status code on the SNF claim, (vi) residents who received care from a provider located outside of the United States, Puerto Rico, or a United States territory as determined from the first two characters of the SNF CCN; (vii) SNF stays in which data were missing on any variable used in the measure construction or risk adjustment, (viii) stays where Medicare did not pay for the stay resulting in a non-positive payment on the SNF claim, and (xi) swing bed stays in critical access hospitals. Refer to **Table 1** to reference the rationale behind each exclusion criterion.

Table 1. Exclusion Criteria and Rationale for SNF HAI Measure

Exclusion	Rationale
Resident is less than 18 years old at time of SNF admission.	Residents under 18 years old are not included in the target population for this measure because there are few pediatric SNF residents and they may have different patterns of care than adults.
The SNF length of stay was shorter than four days.	HAIs that require hospitalization beginning day four after SNF admission will be identified as SNF HAIs. This helps exclude pre-existing infections from the measure numerator. By construction, SNF stays shorter than four days are not long enough to identify SNF HAIs.
Residents who were not continuously enrolled in Part A FFS Medicare during the SNF stay, 12 months prior to the measure period, and three days after the end of SNF stay.	Certain risk adjustment elements for this measure require information on acute inpatient claims for one year prior to the SNF admission, and acute care utilization must be observable in the observation window following discharge. Residents without Part A coverage or who are enrolled in Medicare Advantage plans will have incomplete inpatient claims.
Residents who did not have Part A short-term acute care hospital stay within 30 days prior to the SNF admission date. The short-term stay must have positive payment and positive length of stay.	This measure requires information from the prior short-term acute care hospital stay in the elements used for risk adjustment.

Exclusion	Rationale
Residents who were transferred to a federal hospital from the SNF as determined by the discharge status code on the SNF claim.	Residents who are transferred to federal hospitals will have incomplete inpatient claims.
Residents who received care from a provider located outside of the United States, Puerto Rico, or a U.S. territory as determined from the first two characters of the SNF CMS Certification Number.	Residents who received care from foreign providers may have incomplete inpatient claims, and these providers may not be subject to the same policy decisions related to the measure outcome.
SNF stays in which data were missing on any variable used in the measure construction or risk adjustment. This also includes stays where Medicare did not pay for the stay, which is identified by non-positive payment on the SNF claim.	The measure calculation requires accurate and complete information from the SNF stay, prior short-term acute-care hospital stays, and resident characteristics used for risk adjustment.
SNF stays where Medicare did not pay for the stay resulting in a non-positive payment on the SNF claim.	The stay was not covered under Medicare Part A.
SNF stays from swing beds in critical access hospitals.	Critical access hospitals are not required to submit quality data under the SNF QRP. Therefore, claims-based quality measures exclude swing bed stays in critical access hospitals.

[Response Ends]

sp.18. Provide details needed to calculate the denominator exclusions.

All information required to identify and calculate exclusions from the denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at sp.11.

[Response Begins]

N/A: All exclusion information is provided above in section **sp.17**.

[Response Ends]

sp.19. Provide all information required to stratify the measure results, if necessary.

Include the stratification variables, definitions, specific data collection items/responses, code/value sets, and the risk-model covariates and coefficients for the clinically-adjusted version of the measure when appropriate. Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format in the Data Dictionary field.

[Response Begins]

N/A: This measure does not publicly report stratified HAI rates.

[Response Ends]

sp.20. Is this measure adjusted for socioeconomic status (SES)?

[Response Begins]

No

[Response Ends]

sp.21. Select the risk adjustment type.

Select type. Provide specifications for risk stratification and/or risk models in the Scientific Acceptability section.

[Response Begins]

Statistical risk model with risk factors (specify number of risk factors)

[Statistical risk model with risk factors (specify number of risk factors) Please Explain]

Nine risk factor categories are risk adjusted for. For more information, view **2b.20**.

[Response Ends]

sp.22. Select the most relevant type of score.

Attachment: If available, please provide a sample report.

[Response Begins]

Rate/proportion

[Response Ends]

sp.23. Select the appropriate interpretation of the measure score.

Classifies interpretation of score according to whether better quality or resource use is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score

[Response Begins]

Better quality = Lower score

[Response Ends]

sp.24. Diagram or describe the calculation of the measure score as an ordered sequence of steps.

Identify the target population; exclusions; cases meeting the target process, condition, event, or outcome; time period of data, aggregating data; risk adjustment; etc.

[Response Begins]

Step 1 – Stay Construction: Construct stays as described in **sp.16** and **sp.31**.

Step 2– Denominator Eligibility: Identify eligible stays for inclusion in the measure denominator as described in **sp.17**.

Step 3 – Specifying the Incubation Window: To calculate the measure numerator, identify inpatient readmissions within the specified incubation window as described in Step 1 of **sp.14**.

Step 4– HAI Identification: Identify HAIs as described in Step 2 of **sp.14**.

Step 5 – Applying the Repeat Infection Timeframe: Apply the 14-day repeat infection timeframe as described in step 3 of **sp.14**.

Step 6 – Identifying Risk Adjustment Variables: Once the observed measure numerator and denominator are calculated, determine the presence or absence of risk adjustment variables for each resident. The SNF HAI measure is risk-adjusted by several variables including (i) age and sex categories, (ii) original reason for Medicare entitlement, (iii) prior proximal inpatient stay surgery category, (iv) prior dialysis treatment (not including end-stage renal disease) in the prior proximal inpatient stay, (v) principal diagnosis category in the prior proximal

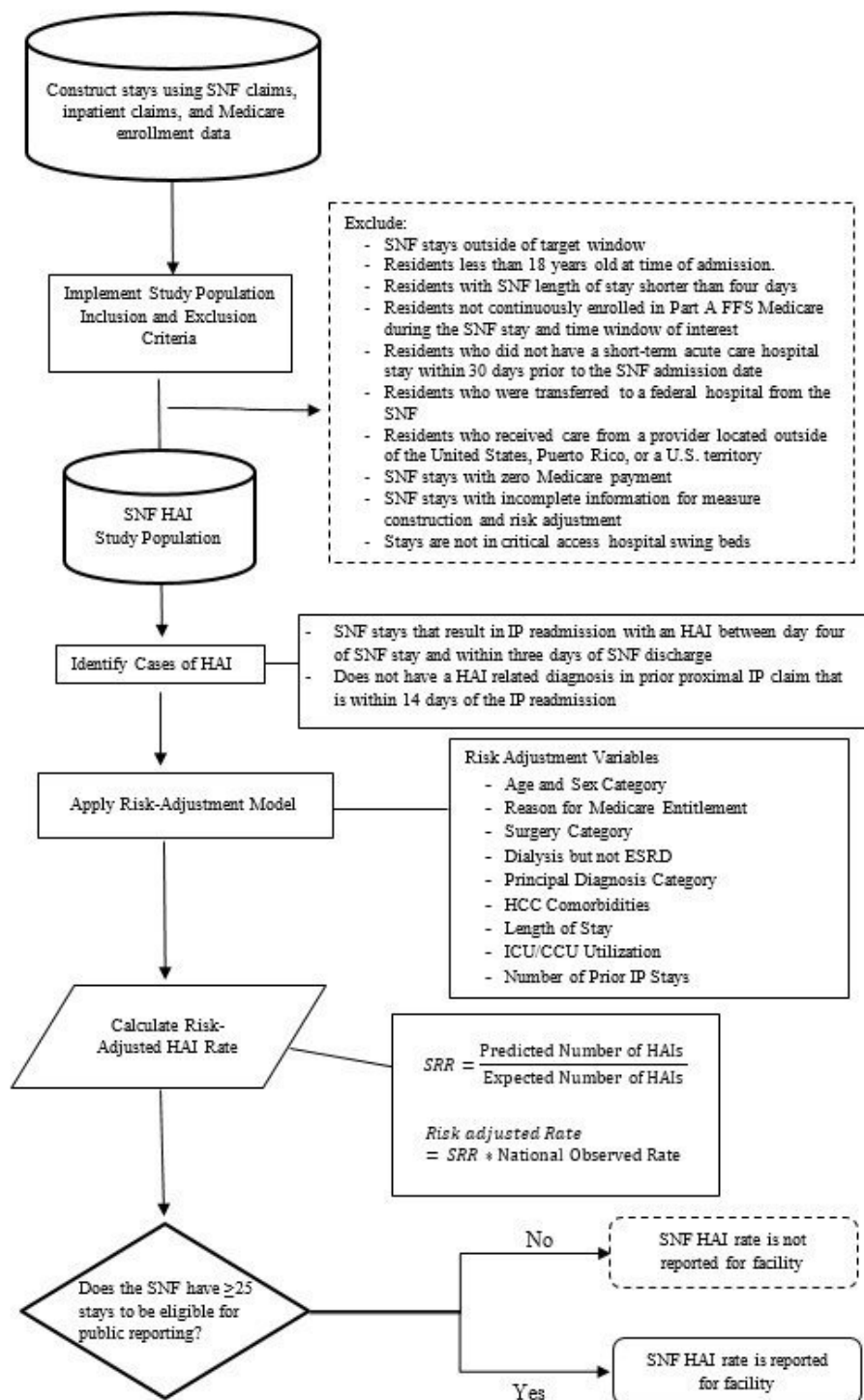
inpatient stay, (vi) Hierarchical Condition Category (HCC) comorbidities, (vii) length of the prior proximal inpatient stay, (viii) utilization of the intensive care unit (ICU) or critical care unit (CCU) in the prior proximal inpatient stay, and (ix) number of prior inpatient stays. Refer to **2b.20** for more information regarding risk adjustment.

Step 7 – Calculating Predicted and Expected HAIs: Use the hierarchical logistic regression model to calculate the predicted and expected number of HAIs that are acquired during SNF care and result in hospitalization. The predicted number is the sum of the predicted probability of HAIs for each SNF based on the specific provider's performance given its observed case-mix, including a provider-specific effect. This provider-specific effect accounts for clustering of patients within the same facility and captures variation in the measure outcome across SNFs. The expected number is the sum of the predicted probability of HAIs for each SNF based on the average provider's performance and its given case-mix, excluding the provider-specific effect. The standardized risk ratio (SRR) is calculated per SNF by dividing the predicted value by the expected value.

Step 8 – Final Risk-Adjusted HAI Rate: Calculate the risk-adjusted rate of HAIs that are acquired during SNF care and result in hospitalization by multiplying the SRR per provider by the overall national observed rate of HAIs.

Step 9 – Public Reporting Threshold: Only SNFs with 25 or more stays are eligible for public reporting.

Refer to the attached image for a diagram of these steps.



[Response Ends]

sp.27. If measure testing is based on a sample, provide instructions for obtaining the sample and guidance on minimum sample size.

Examples of samples used for testing:

- *Testing may be conducted on a sample of the accountable entities (e.g., hospital, physician). The analytic unit specified for the particular measure (e.g., physician, hospital, home health agency) determines the sampling strategy for scientific acceptability testing.*
- *The sample should represent the variety of entities whose performance will be measured. The [2010 Measure Testing Task Force](#) recognized that the samples used for reliability and validity testing often have limited generalizability because measured entities volunteer to participate. Ideally, however, all types of entities whose performance will be measured should be included in reliability and validity testing.*
- *The sample should include adequate numbers of units of measurement and adequate numbers of patients to answer the specific reliability or validity question with the chosen statistical method.*
- *When possible, units of measurement and patients within units should be randomly selected.*

[Response Begins]

Sampling is not used for this measure.

[Response Ends]

sp.30. Select only the data sources for which the measure is specified.

[Response Begins]

Claims

[Response Ends]

sp.31. Identify the specific data source or data collection instrument.

For example, provide the name of the database, clinical registry, collection instrument, etc., and describe how data are collected.

[Response Begins]

This measure is calculated entirely using administrative data. This measure uses data from the Medicare Enrollment Database (EDB) and SNF and inpatient claims. The EDB file provides information on residents' date of birth, demographics, original reason for Medicare enrollment, and periods of Medicare enrollment information. Information used for measure construction from SNF claims includes residents' date of admission, hospitalization information and diagnoses, as well as variables used for risk adjustment including residents' prior acute care utilization.

[Response Ends]

sp.32. Provide the data collection instrument.

[Response Begins]

No data collection instrument provided

[Response Ends]

Measure testing must demonstrate adequate reliability and validity in order to be recommended for endorsement. Testing may be conducted for data elements and/or the computed measure score. Testing information and results

should be entered in the appropriate fields in the Scientific Acceptability sections of the Measure Submission Form.

- Measures must be tested for all the data sources and levels of analyses that are specified. If there is more than one set of data specifications or more than one level of analysis, contact NQF staff about how to present all the testing information in one form.
- All required sections must be completed.
- For composites with outcome and resource use measures, Questions 2b.23-2b.37 (Risk Adjustment) also must be completed.
- If specified for multiple data sources/sets of specifications (e.g., claims and EHRs), Questions 2b.11-2b.13 also must be completed.
- An appendix for supplemental materials may be submitted (see Question 1 in the Additional section), but there is no guarantee it will be reviewed.
- Contact NQF staff with any questions. Check for resources at the [Submitting Standards webpage](#).
- For information on the most updated guidance on how to address social risk factors variables and testing in this form refer to the release notes for the [2021 Measure Evaluation Criteria and Guidance](#).

Note: The information provided in this form is intended to aid the Standing Committee and other stakeholders in understanding to what degree the testing results for this measure meet NQF's evaluation criteria for testing.

2a. Reliability testing demonstrates the measure data elements are repeatable, producing the same results a high proportion of the time when assessed in the same population in the same time period and/or that the measure score is precise. For instrument-based measures (including PRO-PMs) and composite performance measures, reliability should be demonstrated for the computed performance score.

2b1. Validity testing demonstrates that the measure data elements are correct and/or the measure score correctly reflects the quality of care provided, adequately identifying differences in quality. For instrument based measures (including PRO-PMs) and composite performance measures, validity should be demonstrated for the computed performance score.

2b2. Exclusions are supported by the clinical evidence and are of sufficient frequency to warrant inclusion in the specifications of the measure;

AND

If patient preference (e.g., informed decision-making) is a basis for exclusion, there must be evidence that the exclusion impacts performance on the measure; in such cases, the measure must be specified so that the information about patient preference and the effect on the measure is transparent (e.g., numerator category computed separately, denominator exclusion category computed separately).

2b3. For outcome measures and other measures when indicated (e.g., resource use):

- an evidence-based risk-adjustment strategy (e.g., risk models, risk stratification) is specified; is based on patient factors (including clinical and social risk factors) that influence the measured outcome and are present at start of care; 14,15 and has demonstrated adequate discrimination and calibration
- rationale/data support no risk adjustment/ stratification.

2b4. Data analysis of computed measure scores demonstrates that methods for scoring and analysis of the specified measure allow for identification of statistically significant and practically/clinically meaningful 16 differences in performance;

OR

there is evidence of overall less-than-optimal performance.

2b5. If multiple data sources/methods are specified, there is demonstration they produce comparable results.

2b6. Analyses identify the extent and distribution of missing data (or nonresponse) and demonstrate that performance results are not biased due to systematic missing data (or differences between responders and non-responders) and how the specified handling of missing data minimizes bias.

2c. For composite performance measures, empirical analyses support the composite construction approach and demonstrate that:

2c1. the component measures fit the quality construct and add value to the overall composite while achieving the related objective of parsimony to the extent possible; and

2c2. the aggregation and weighting rules are consistent with the quality construct and rationale while achieving the related objective of simplicity to the extent possible.

(if not conducted or results not adequate, justification must be submitted and accepted)

Definitions

Reliability testing applies to both the data elements and computed measure score. Examples of reliability testing for data elements include, but are not limited to: inter-rater/abstractor or intra-rater/abstractor studies; internal consistency for multi-item scales; test-retest for survey items. Reliability testing of the measure score addresses precision of measurement (e.g., signal-to-noise).

Validity testing applies to both the data elements and computed measure score. Validity testing of data elements typically analyzes agreement with another authoritative source of the same information. Examples of validity testing of the measure score include, but are not limited to: testing hypotheses that the measures scores indicate quality of care, e.g., measure scores are different for groups known to have differences in quality assessed by another valid quality measure or method; correlation of measure scores with another valid indicator of quality for the specific topic; or relationship to conceptually related measures (e.g., scores on process measures to scores on outcome measures). Face validity of the measure score as a quality indicator may be adequate if accomplished through a systematic and transparent process, by identified experts, and explicitly addresses whether performance scores resulting from the measure as specified can be used to distinguish good from poor quality. The degree of consensus and any areas of disagreement must be provided/discussed.

Examples of evidence that an exclusion distorts measure results include, but are not limited to: frequency of occurrence, variability of exclusions across providers, and sensitivity analyses with and without the exclusion.

Patient preference is not a clinical exception to eligibility and can be influenced by provider interventions.

Risk factors that influence outcomes should not be specified as exclusions.

With large enough sample sizes, small differences that are statistically significant may or may not be practically or clinically meaningful. The substantive question may be, for example, whether a statistically significant difference of one percentage point in the percentage of patients who received smoking cessation counseling (e.g., 74 percent v. 75 percent) is clinically meaningful; or whether a statistically significant difference of \$25 in cost for an episode of care (e.g., \$5,000 v.\$5,025) is practically meaningful. Measures with overall less-than-optimal performance may not demonstrate much variability across providers.

Please separate added or updated information from the most recent measure evaluation within each question response in the Scientific Acceptability sections. For example:

Current Submission:

Updated testing information here.

Previous (Year) Submission:

Testing from the previous submission here.

2a.01. Select only the data sources for which the measure is tested.

[Response Begins]

Claims

[Response Ends]

2a.02. If an existing dataset was used, identify the specific dataset.

The dataset used for testing must be consistent with the measure specifications for target population and healthcare entities being measured; e.g., Medicare Part A claims, Medicaid claims, other commercial insurance, nursing home MDS, home health OASIS, clinical registry).

[Response Begins]

Medicare enrollment data, Medicare Part A Claims

[Response Ends]

2a.03. Provide the dates of the data used in testing.

Use the following format: "MM-DD-YYYY - MM-DD-YYYY"

[Response Begins]

FY2021 (10-1-2020 - 09-30-2021); Note that the measure utilizes a 365-day lookback period.

[Response Ends]

2a.04. Select the levels of analysis for which the measure is tested.

Testing must be provided for all the levels specified and intended for measure implementation, e.g., individual clinician, hospital, health plan.

Please refrain from selecting the following answer option(s). We are in the process of phasing out these answer options and request that you instead select one of the other answer options as they apply to your measure.

Please do not select:

- *Clinician: Clinician*
- *Population: Population*

[Response Begins]

Facility

[Response Ends]

2a.05. List the measured entities included in the testing and analysis (by level of analysis and data source).

Identify the number and descriptive characteristics of measured entities included in the analysis (e.g., size, location, type); if a sample was used, describe how entities were selected for inclusion in the sample.

[Response Begins]

11,961 of all Medicare-certified SNFs are eligible for public reporting and have 25 stays or more. Among this population, the average SNF HAI rate was 7.63% with a minimum of 3.19%, maximum of 20.27%, median of 7.37%, interquartile range of 2.31%, and a standard deviation of 1.80%. See **Table 2** for information regarding the

percentage of SNFs per SNF characteristics, (i.e., facility size, ownership type, region, and urban/rural status) among publicly reportable facilities.

Table 2. Percentage of SNFs per SNF Characteristic, FY2021

SNF Characteristics	Number of SNFs	Percent of SNFs
National Rate	National Rate	National Rate
All SNFs	11,961	100.00%
Number of Eligible Stays	Number of Eligible Stays	Number of Eligible Stays
25-49	3,747	31.33%
50-79	3,024	25.28%
80-199	4,116	34.41%
200-499	1,012	8.46%
500+	62	0.52%
Ownership	Ownership	Ownership
For-Profit	8,723	72.93%
Nonprofit	2,688	22.47%
Government	540	4.51%
Unknown	10	0.08%
Institution Type	Institution Type	Institution Type
Freestanding	11,557	96.62%
Hospital-based	299	2.50%
Swing Bed	103	0.86%
Unknown	2	0.02%
Census Region	Census Region	Census Region
New England	724	6.05%
Middle Atlantic	1,501	12.55%
East North Central	2,328	19.46%
West North Central	1,136	9.50%
South Atlantic	2,106	17.61%
East South Central	903	7.55%
West South Central	1,498	12.52%
Mountain	517	4.32%
Pacific	1,245	10.41%
Outlying	3	0.03%
Urban/Rural Status	Urban/Rural Status	Urban/Rural Status
Urban	9,165	76.62%
Rural	2,791	23.33%
Unknown	5	0.04%

[Response Ends]

2a.06. Identify the number and descriptive characteristics of patients included in the analysis (e.g., age, sex, race, diagnosis), separated by level of analysis and data source; if a sample was used, describe how patients were selected for inclusion in the sample.

If there is a minimum case count used for testing, that minimum must be reflected in the specifications.

[Response Begins]

See the table below (**Table 3**) for information regarding SNF stays and resident characteristics.

Table 3. Percentage of Stays per Resident Characteristic, FY2021

Resident Characteristics	Number of Stays	Percent of Stays
National Rate	National Rate	National Rate
All Stays	1,196,443	100.00%
Sex	Sex	Sex
Male	487,689	40.76%
Female	708,754	59.24%
Age	Age	Age
18-34 years	1,773	0.15%
35-44 years	6,260	0.52%
45-54 years	20,843	1.74%
55-59 years	28,290	2.36%
60-64 years	47,947	4.01%
65-69 years	118,203	9.88%
70-74 years	175,847	14.70%
75-79 years	198,042	16.55%
80-84 years	211,717	17.70%
85-89 years	198,718	16.61%
90-94 years	135,912	11.36%
95+ years	52,891	4.42%
Race/Ethnicity	Race/Ethnicity	Race/Ethnicity
White	1,008,679	84.31%
Black	125,030	10.45%
Hispanic	17,734	1.48%
Asian	15,026	1.26%
Native American	6,960	0.58%
Other/Unknown	23,014	1.92%
Original Reason for Enrollment	Original Reason for Enrollment	Original Reason for Enrollment
Aged (with or without ESRD)	892,080	74.56%
Disabled (with or without ESRD)	297,015	24.82%
ESRD only	7,348	0.61%

Resident Characteristics	Number of Stays	Percent of Stays
Medicare/Medicaid Enrollment	Medicare/Medicaid Enrollment	Medicare/Medicaid Enrollment
Not Dually Enrolled	782,218	65.38%
Dually Enrolled	414,204	34.62%

[Response Ends]

2a.07. If there are differences in the data or sample used for different aspects of testing (e.g., reliability, validity, exclusions, risk adjustment), identify how the data or sample are different for each aspect of testing.

[Response Begins]

N/A

[Response Ends]

2a.08. List the social risk factors that were available and analyzed.

For example, patient-reported data (e.g., income, education, language), proxy variables when social risk data are not collected from each patient (e.g. census tract), or patient community characteristics (e.g. percent vacant housing, crime rate) which do not have to be a proxy for patient-level data.

[Response Begins]

We assessed Medicare/Medicaid dual enrollment and race/ethnicity in relation to the SNF HAI measure. See section **2b.25** for more details.

[Response Ends]

Note: If accuracy/correctness (validity) of data elements was empirically tested, separate reliability testing of data elements is not required – in 2a.09 check patient or encounter-level data; in 2a.010 enter “see validity testing section of data elements”; and enter “N/A” for 2a.11 and 2a.12.

2a.09. Select the level of reliability testing conducted.

Choose one or both levels.

[Response Begins]

Accountable Entity Level (e.g., signal-to-noise analysis)

[Response Ends]

2a.10. For each level of reliability testing checked above, describe the method of reliability testing and what it tests.

Describe the steps—do not just name a method; what type of error does it test; what statistical analysis was used.

[Response Begins]

Split-half reliability testing was used to assess the internal consistency of FY2021 (Q42020-Q32021) SNF HAI data. In split-half testing, stays within a facility are randomly assigned into two groups and the observed and risk-adjusted HAI rate per facility is calculated for both groups. The correlation between the HAI rates of the two

groups is measured using the Intraclass correlation coefficient (2,1) and Pearson's correlation. This process was repeated 20 times to even and rule out extreme values. The results below report the mean correlation score over 20 iterations. All correlation coefficients were adjusted using the Spearman-Brown prediction formula.

[Response Ends]

2a.11. For each level of reliability testing checked above, what were the statistical results from reliability testing?

For example, provide the percent agreement and kappa for the critical data elements, or distribution of reliability statistics from a signal-to-noise analysis. For score-level reliability testing, when using a signal-to-noise analysis, more than just one overall statistic should be reported (i.e., to demonstrate variation in reliability across providers). If a particular method yields only one statistic, this should be explained. In addition, reporting of results stratified by sample size is preferred (pg. 18, [NQF Measure Evaluation Criteria](#)).

[Response Begins]

Among publicly reportable SNFs with 25 or more stays (n = 11,961), Intraclass and Pearson correlations were both 0.50.

[Response Ends]

2a.12. Interpret the results, in terms of how they demonstrate reliability.

(In other words, what do the results mean and what are the norms for the test conducted?)

[Response Begins]

Results of the split-half reliability analysis indicate moderate reliability.

[Response Ends]

2b.01. Select the level of validity testing that was conducted.

[Response Begins]

Empirical validity testing

[Response Ends]

2b.02. For each level of testing checked above, describe the method of validity testing and what it tests.

Describe the steps—do not just name a method; what was tested, e.g., accuracy of data elements compared to authoritative source, relationship to another measure as expected; what statistical analysis was used.

[Response Begins]

1. Convergent Validity: To assess convergent validity, the relationships between the SNF HAI measure and other publicly reported quality measures were assessed. Groups of quality measures that reflect similar care processes or outcomes were examined with the hypothesis that a facility's percentile ranking (compared to all facilities reporting the measure) may be somewhat consistent among related quality measures. Since the SNF HAI measure fills a measurement gap in the program, correlations with other measures are not expected to be high by design. This analysis was restricted to FY2021 data and only included providers with at least 25 stays and are eligible for public reporting (n = 11,961).

2. Model Fit: Model fit statistics were used to determine if the SNF HAI model can predict HAI cases while controlling for differences in resident case mix. The C-statistic is a measure of risk adjustment model discrimination

that judges the model's ability to correctly classify outcomes as negative or positive. The validity testing sample included all Medicare-certified SNFs (n = 15,132) and stays.

3. COVID-19 Correlation Analysis: In a test of predictive validity, a correlation analysis was performed to assess the relationship between FY2019 SNF HAI rates and COVID-19 cases and deaths occurring from January 1, 2020 - November 29, 2020. In this analysis, SNFs were stratified into quintiles of HAI rates and the average HAI rate, the percentage of facilities without COVID-19 cases, and average COVID-19 case and death rates for each quintile were calculated. This study population included Medicare-certified facilities providing SNF care that have submitted COVID-19 data to the Centers for Disease Control and Prevention's (CDC) National Healthcare Safety Network (NHSN) for the week of November 29, 2020 and have at least 25 SNF stays (n = 11,192).

4. Face Validity: Face validity was assessed during the May 2019 SNF HAI development Technical Expert Panel (TEP). 12 panelists participated in the TEP, including those with SNF and post-acute care subject knowledge, clinical and infectious disease expertise, patient and family perspectives, and measure development experience.

[Response Ends]

2b.03. Provide the statistical results from validity testing.

Examples may include correlations or t-test results.

[Response Begins]

1. Convergent Validity: Using Spearman's rank correlation, we compared the HAI measure to SNF QRP claims-based measures [Discharge to Community (DTC) and Potentially Preventable 30-Day Post-Discharge Readmission Measure (PPR)], NHQI short-stay assessment-based measures [Percentage of short-stay residents who were assessed and appropriately given the seasonal influenza vaccine and Percentage of short-stay residents assessed and appropriately given the pneumococcal vaccine], and Five-Star Quality Rating measures [RN Staffing]. As expected, the following measures were negatively correlated with HAI: DTC (-0.30), RN Staffing (-0.28), Percentage of short-stay residents who were assessed and appropriately given the seasonal influenza vaccine (-0.07), Percentage of short-stay residents assessed and appropriately given the pneumococcal vaccine (-0.06). As expected, PPR was positively correlated with HAI (0.15). All Spearman's rank correlations were statistically significant using the alpha level of 0.05.

2. Model Fit: The C-statistic was 0.70.

3. COVID-19 Correlation Analysis: Facilities in higher quintiles, with higher SNF HAI measure rates, had a higher average number of COVID-19 cases and deaths per 1,000 residents and had lower percentages of providers with no COVID-19 cases. Specifically, there was an average of 161.6 COVID-19 cases per 1,000 residents in the fifth quintile, compared to 90.5 in the first. There was an average of 30.4 COVID-19 deaths per 1,000 residents in the fifth quintile compared to 18.0 in the first. In the fifth quintile, 8.1% of providers had zero cases of COVID-19 compared to 14.6% in the first quintile. Spearman rank-order correlations between the SNF HAI measure and COVID-19 metrics were also assessed. SNF HAI measure rates were positively correlated with the number of COVID-19 cases ($r_s = 0.139$, $p < 0.0001$) and deaths ($r_s = 0.110$, $p < 0.0001$) per 1,000 residents.

4. Face Validity: Panelists from the May 2019 SNF HAI development TEP supported the conceptual and operational definition of the HAI measure and agreed with the measure's specifications.

[Response Ends]

2b.04. Provide your interpretation of the results in terms of demonstrating validity. (i.e., what do the results mean and what are the norms for the test conducted?)

[Response Begins]

1. Convergent Validity: The direction of the correlations aligned with clinical expectations and all Spearman's rank correlations were statistically significant using the alpha level of 0.05. This indicates good convergent/predictive validity and that the SNF HAI measure is related to other specific measures as expected.
2. Model Fit: A C-statistic of 0.70 suggests good model discrimination.
3. COVID-19 Correlation Analysis: Facilities with higher HAI rates in FY2019 have higher numbers of COVID-19 case and deaths. Therefore, the measure can identify SNFs in need of improved infection control and prevention efforts.
4. Face Validity: Panelists from the May 2019 SNF HAI development TEP supported the conceptual and operational definition of the HAI measure and agreed with the measure's specifications, indicating strong face validity.

[Response Ends]

2b.05. Describe the method for determining if statistically significant and clinically/practically meaningful differences in performance measure scores among the measured entities can be identified.

Describe the steps—do not just name a method; what statistical analysis was used? Do not just repeat the information provided in Importance to Measure and Report: Gap in Care/Disparities.

[Response Begins]

1. HAI distribution: To determine the variation in provider performance among the SNF HAI measure and assess meaningful differences in performance measure scores, we examined the distribution of scores, including mean, minimum, and maximum performance scores among publicly reportable SNFs (n = 11,961).
2. Number of avoidable HAIs among publicly reportable SNFs: To determine meaningful differences in provider performance, we determined the number of risk-adjusted HAIs that could be avoided if all publicly reportable providers (with at least 25 stays) performed at least as well as the national average.

[Response Ends]

2b.06. Describe the statistical results from testing the ability to identify statistically significant and/or clinically/practically meaningful differences in performance measure scores across measured entities.

Examples may include number and percentage of entities with scores that were statistically significantly different from mean or some benchmark, different from expected; how was meaningful difference defined.

[Response Begins]

1. HAI Distribution: 11,961 of all Medicare-certified SNFs are eligible for public reporting and have 25 stays or more. Among this population, the average SNF HAI rate was 7.63% with a minimum of 3.19%, maximum of 20.27%, median of 7.37%, interquartile range of 2.31%, and a standard deviation of 1.80%.
2. Number of avoidable HAIs among publicly reportable SNFs: In total, 9,022 HAI could be avoided if all providers performed at least as well as the national average SNF HAI rate (n = 5,736).

[Response Ends]

2b.07. Provide your interpretation of the results in terms of demonstrating the ability to identify statistically significant and/or clinically/practically meaningful differences in performance across measured entities.

In other words, what do the results mean in terms of statistical and meaningful differences?

[Response Begins]

1. HAI distribution: There is a wide variation in SNF HAI measure scores indicating meaningful differences in performance measure scores.
2. Number of avoidable HAIs among publicly reportable SNFs: Results of this analysis are clinically and meaningfully significant as approximately 10% of total HAIs can be avoided if all providers performed at least as well as the national average. Treating HAIs that result in hospitalization is estimated to cost approximately \$15,000 per HAI event. Therefore, the estimated cost savings of avoiding 9,022 HAIs can result in over \$134 million of savings.

[Response Ends]

2b.08. Describe the method of testing conducted to identify the extent and distribution of missing data (or non-response) and demonstrate that performance results are not biased due to systematic missing data (or differences between responders and non-responders). Include how the specified handling of missing data minimizes bias.

Describe the steps—do not just name a method; what statistical analysis was used.

[Response Begins]

This measure is calculated using Medicare FFS data; because submission and completion of claims is tied to provider reimbursement, missing data are rare.

[Response Ends]

2b.09. Provide the overall frequency of missing data, the distribution of missing data across providers, and the results from testing related to missing data.

For example, provide results of sensitivity analysis of the effect of various rules for missing data/non-response. If no empirical sensitivity analysis was conducted, identify the approaches for handling missing data that were considered and benefits and drawbacks of each).

[Response Begins]

N/A

[Response Ends]

2b.10. Provide your interpretation of the results, in terms of demonstrating that performance results are not biased due to systematic missing data (or differences between responders and non-responders), and how the specified handling of missing data minimizes bias.

In other words, what do the results mean in terms of supporting the selected approach for missing data and what are the norms for the test conducted; if no empirical analysis was conducted, justify the selected approach for missing data.

[Response Begins]

N/A

[Response Ends]

Note: This item is directed to measures that are risk-adjusted (with or without social risk factors) OR to measures with more than one set of specifications/instructions (e.g., one set of specifications for how to identify and compute the measure from medical record abstraction and a different set of specifications for claims or eQMs). It does not apply to measures that use more than one source of data in one set of specifications/instructions (e.g., claims data to identify the denominator and medical record abstraction for the numerator). Comparability is not required when comparing performance scores with and without social risk factors in the risk adjustment model. However, if comparability is not demonstrated for measures with more than one set of specifications/instructions, the different specifications (e.g., for medical records vs. claims) should be submitted as separate measures.

2b.11. Indicate whether there is more than one set of specifications for this measure.

[Response Begins]

No, there is only one set of specifications for this measure

[Response Ends]

2b.12. Describe the method of testing conducted to compare performance scores for the same entities across the different data sources/specifications.

Describe the steps—do not just name a method. Indicate what statistical analysis was used.

[Response Begins]

[Response Ends]

2b.13. Provide the statistical results from testing comparability of performance scores for the same entities when using different data sources/specifications.

Examples may include correlation, and/or rank order.

[Response Begins]

[Response Ends]

2b.14. Provide your interpretation of the results in terms of the differences in performance measure scores for the same entities across the different data sources/specifications.

In other words, what do the results mean and what are the norms for the test conducted.

[Response Begins]

[Response Ends]

2b.15. Indicate whether the measure uses exclusions.

[Response Begins]

Yes, the measure uses exclusions.

[Response Ends]

2b.16. Describe the method of testing exclusions and what was tested.

Describe the steps—do not just name a method; what was tested, e.g., whether exclusions affect overall performance scores; what statistical analysis was used?

[Response Begins]

Measure exclusion criteria are presented in section **sp.17**. Using FY2021 data, we examined the stay-level frequency of each exclusion criterion, meaning we calculated the number and percentage of stays eligible for inclusion in the measure denominator (**Table 4**). We also assessed the facility-level distribution of exclusion criteria (**Table 5**).

[Response Ends]

2b.17. Provide the statistical results from testing exclusions.

Include overall number and percentage of individuals excluded, frequency distribution of exclusions across measured entities, and impact on performance measure scores.

[Response Begins]

The percentage of stays eligible for inclusion in the measure denominator are listed as follows and also encompassed in **Table 4** per eligibility criterion. 100% of stays were eligible for inclusion in the measure denominator due to the beneficiary age requirement of 18 years or older. 100% of stays were also eligible due to provider location within the United States. 100% of stays were eligible due to lack of resident transfer to a federal hospital. 96.5% of stays were eligible as they were not in critical access hospital swing beds. 93.9% of stays were eligible due to a length of stay of four or more days. 81.9% of stays were eligible as they had a non-zero Medicare payment. 76.7% of stays were eligible due to continuous beneficiary enrollment in Medicare Part A. 72.2% of stays were eligible as they could be matched to a prior eligible inpatient stay within 30 days of SNF admission. Lastly, 72.2% of stays had complete information for measure construction and risk adjustment and were eligible for denominator inclusion. Overall, 52.3% of stays met all seven inclusion criteria. Lastly, the facility-level distribution of eligibility criteria is presented in **Table 5**.

Table 4. Stay-level Frequencies of SNF HAI Denominator Eligibility Criteria

Eligibility Criteria	Number of Stays	Percentage of Stays
Continuous enrollment in Medicare Part A (one year before SNF admission and three days after discharge)	1,755,629	76.7%
Stay can be matched to prior eligible inpatient stay	1,652,587	72.2%
Beneficiary age is 18 years or older	2,287,886	100.0%
Length of stay is greater or equal to four days	2,147,504	93.9%
Stay was not transferred to a federal hospital	2,287,742	100.0%
Stay has a non-zero Medicare payment	1,873,721	81.9%
Provider of stay is located within the 50 U.S. states, Puerto Rico, or U.S. territory	2,287,886	100.0%

Eligibility Criteria	Number of Stays	Percentage of Stays
Stays have completed information for measure construction and risk adjustment	1,652,587	72.2%
Stays are not in critical access hospital swing beds	2,207,047	96.5%
Total Eligible SNF stays	1,196,443	52.3%

Table 5. Facility-level Distribution of SNF HAI Denominator Eligibility Criteria

Eligibility Criteria	Mean	SD	Min	25 th	50 th	75 th	Max
Continuous enrollment in Medicare Part A (one year before SNF admission and three days after discharge)	81.4%	18.2%	0.0%	71.4%	88.5%	95.4%	100.0%
Stay can be matched to prior eligible inpatient stay	73.0%	17.3%	0.0%	61.7%	75.5%	86.4%	100.0%
Beneficiary age is 18 years or older	100.0%	0.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Length of stay is greater or equal to four days	93.7%	5.4%	0.0%	92.2%	94.4%	96.6%	100.0%
Stay was not transferred to a federal hospital	100.0%	0.3%	75.7%	100.0%	100.0%	100.0%	100.0%
Stay has a non-zero Medicare payment	87.0%	17.7%	0.0%	79.6%	95.9%	99.6%	100.0%
Provider of stay is located within the 50 U.S. states, Puerto Rico, or U.S. territory	100.0%	0.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Stays have completed information for measure construction and risk adjustment	73.0%	17.3%	0.0%	61.7%	75.5%	86.4%	100.0%
Stays are not in critical access hospital swing beds	92.2%	26.8%	0.0%	100.0%	100.0%	100.0%	100.0%
Total Eligible SNF stays	52.3%	24.0%	0.0%	37.7%	54.9%	70.5%	100.0%

[Response Ends]

2b.18. Provide your interpretation of the results, in terms of demonstrating that exclusions are needed to prevent unfair distortion of performance results.

In other words, the value outweighs the burden of increased data collection and analysis. Note: If patient preference is an exclusion, the measure must be specified so that the effect on the performance score is transparent, e.g., scores with and without exclusion.

[Response Begins]

The two criteria that excluded the greatest number of stays include (i) the requirement for stays to be matched to a prior eligible inpatient stay, and (ii) the requirement that a stay has completed information for measure construction and risk adjustment. Exclusions are required to ensure availability of complete and valid data for measure specification. For example, since information from the prior inpatient claim is needed for risk adjustment, beneficiaries are only eligible for denominator inclusion if their stays can be matched to a prior eligible inpatient stay. The same is true for any stays missing information needed for measure construction. In practice, the number of stays excluded due to the requirement that a stay has completed information for measure construction and risk adjustment is driven by the requirement for stays to be matched to a prior eligible inpatient stay.

[Response Ends]

2b.19. Check all methods used to address risk factors.

[Response Begins]

Statistical risk model with risk factors (specify number of risk factors)

[Statistical risk model with risk factors (specify number of risk factors) Please Explain]

As referenced in **Table 6** in section **2b.20**, the risk adjustment model includes nine variable categories: (i) age and sex categories, (ii) original reason for Medicare entitlement, (iii) prior proximal inpatient stay surgery category, (iv) prior dialysis treatment (not including end-stage renal disease) in the prior proximal inpatient stay, (v) principal diagnosis category in the prior proximal inpatient stay, (vi) Hierarchical Condition Category (HCC) comorbidities, (vii) length of the prior proximal inpatient stay, (viii) utilization of the intensive care unit (ICU) or critical care unit (CCU) in the prior proximal inpatient stay, and (ix) number of prior inpatient stays. Approximately 200 clinical categories are captured through risk adjustment for the principal diagnosis on the prior proximal inpatient stay, and approximately 80 comorbidities are captured by adjustment of HCCs.

[Response Ends]

2b.20. If using statistical risk models, provide detailed risk model specifications, including the risk model method, risk factors, risk factor data sources, coefficients, equations, codes with descriptors, and definitions.

[Response Begins]

Risk adjustment model specifications: Refer to **Table 6** for a full list of SNF HAI risk adjustment variables. The SNF HAI measure is risk-adjusted using a hierarchical logistic risk model to account for differences in patient case-mix across SNF providers. The model predicts the probability of an HAI that is acquired during SNF care and results in hospitalization. The risk-adjustors are predictor variables in the model. The hierarchical modeling allows for a provider-specific effect which accounts for clustering of patients within the same facility. The model estimates both the average predictive effect on resident characteristics across all SNFs, and the degree to which each SNF has an effect on the outcome that differs from that of the average SNF. The SNF provider effect is assumed to be randomly distributed around the average (according to a normal distribution). When computing the estimate of the SNF provider effect, hierarchical modeling accounts for the known predictors of the outcome, on average, such as resident characteristics, the observed SNF rate for this outcome, and the number of SNF stays eligible for the measure. The estimated SNF effect is primarily determined by the SNF's own data if the number of stays is

relatively large, as the estimate would be relatively precise. The estimated SNF effect is adjusted toward the average if the number of stays is small, as small samples yield less precise estimates.

Risk adjustment equations: Refer to the attached equations used in the risk adjustment model. Let Y_{ij} , denote the outcome (equal to 1 if the resident i has an HAI that is acquired during SNF care and results in hospitalization) for a resident i at SNF j ; Z_{ij} denotes a set of risk factors. We assume the outcome is related linearly to the covariates via a logit function with dispersion: where $Z_{ij} = (Z_{ij1}, Z_{ij2}, \dots, Z_{ijk})$ is a set of k resident-level covariates. α_j represents the SNF specific intercept of the j -th SNF which is assumed to follow a normal distribution with mean μ and variance τ^2 , independent of Z_{ij} .

The estimated equation is used twice in the measure. The sum of the probabilities of HAIs, including both the effects of resident characteristics and the specific SNF of interest, is the “predicted number” of HAIs that are acquired during SNF care and result in hospitalization after adjusting for case mix. The same equation is used without the SNF effect to compute the “expected number” for the same residents at a SNF whose quality is at the national average level. The ratio of the predicted-to-expected number of HAIs measures the degree to which the number of HAIs that are acquired during the SNF’s care and result in hospitalization are higher or lower than what would otherwise be expected at the average SNF. This ratio is called the standardized risk ratio, which is then multiplied by the overall observed rate of the measure outcome in the target population (all SNF stays included in the measure) to obtain the risk-adjusted rate of HAIs that are acquired during SNF care and result in hospitalization, for each SNF.

$$\text{logit}(P(Y_{ij} = 1 | Z_{ij}, \alpha_j)) = \log \left(\frac{P(Y_{ij} = 1 | Z_{ij}, \alpha_j)}{1 - P(Y_{ij} = 1 | Z_{ij}, \alpha_j)} \right) = \alpha_j + \beta * Z_{ij}$$

$$\alpha_j = \mu + \omega_j ; \omega_j \sim N(0, \tau^2)$$

A comprehensive list of our risk adjustment covariates as well as coefficient estimates are included in the *SNF-HAI-NQF-Submission-Attachment-sp12-20230105.xlsx* attachment in questions **sp.12**. Refer to **Table 6** for descriptions of each risk adjustment category.

Table 6. SNF HAI Risk Adjustment Categories and Variable Information

Risk Adjustment Category	Variable Information
Age and sex category	Information on age and sex is obtained from the Medicare enrollment database. Age is calculated as of the admission date of the SNF stay using the beneficiary’s date of birth as listed in the Medicare enrollment database.
Original reason for Medicare entitlement	Information on reason for Medicare entitlement is obtained from the Medicare enrollment database and re-categorized into two groups: i) Age and disabled or ii) End-stage renal disease (ESRD).
Prior proximal inpatient stay surgery category	Procedures from the prior proximal IP stay (if present on the prior proximal hospital claim) are grouped using the Clinical Classification Software (CCS) for ICD-10 procedures developed by the Agency for Healthcare Research and Quality (AHRQ) and then categorized into surgical categories as defined in the Hospital-Wide All-Cause Unplanned Readmission measure.
Prior dialysis treatment (not including ESRD)	Prior dialysis treatment is identified using revenue center codes on the prior proximal IP claim. This definition of dialysis utilization excludes ESRD patients, who are defined as beneficiaries with ESRD as their reason for Medicare eligibility in the month of admission of the prior proximal IP stay.

Risk Adjustment Category	Variable Information
Principle diagnosis category from the prior proximal inpatient stay	The principal diagnosis on the prior proximal hospital claim was grouped into Clinical Classification Software (CCS) for ICD-10 diagnoses developed by the Agency for Healthcare Research and Quality (AHRQ).
HCC comorbidities	Comorbidities are obtained from the secondary diagnosis codes on the prior short-term claim and all diagnosis codes from earlier claims up to one year before SNF admission. Comorbidities are grouped using CMS Hierarchical Condition Categories (HCC) software version 22.
Length of prior proximal inpatient stay	The length of stay of the prior proximal inpatient stay is the total number of days of care from admission to discharge as obtained from the prior proximal hospital claim. In the case of a missing discharge date, the last day of the stay (latest thru date on the inpatient claim) is counted.
ICU/CCU utilization in the prior proximal inpatient stay	Prior intensive care and coronary care utilization is identified using revenue center codes on the prior proximal hospital claim.
Number of prior inpatient stays	The count of prior short-term discharges within a one-year lookback from the SNF admission date, excluding the most proximal hospitalization claim prior to the SNF admission.

[Response Ends]

2b.21. If an outcome or resource use measure is not risk-adjusted or stratified, provide rationale and analyses to demonstrate that controlling for differences in patient characteristics (i.e., case mix) is not needed to achieve fair comparisons across measured entities.

[Response Begins]

N/A, this measure is risk-adjusted.

[Response Ends]

2b.22. Select all applicable resources and methods used to develop the conceptual model of how social risk impacts this outcome.

[Response Begins]

Internal data analysis

[Response Ends]

2b.23. Describe the conceptual and statistical methods and criteria used to test and select patient-level risk factors (e.g., clinical factors, social risk factors) used in the statistical risk model or for stratification by risk.

Please be sure to address the following: potential factors identified in the literature and/or expert panel; regression analysis; statistical significance of $p < 0.10$ or other statistical tests; correlation of x or higher. Patient factors should be present at the start of care, if applicable. Also discuss any "ordering" of risk factor inclusion; note whether social risk factors are added after all clinical factors. Discuss any considerations regarding data sources (e.g., availability, specificity).

[Response Begins]

In alignment with 2019 TEP recommendations, we aligned SNF HAI risk adjustment categories with those used for other claims-based quality measures (i.e., SNF 30-Day All Cause Readmission Measure (SNFRM), Potentially Preventable 30-Day Post Discharge Readmission Measure (PPR), and Discharge to Community (DTC))[1]. These

categories include, age; sex; original reason for Medicare entitlement (age, disability, or ESRD); surgical categories based on the prior hospital claim; principal diagnosis on the prior hospital claim; comorbidities on the prior hospital claim or a 365-day lookback (HCCs); length of stay in the prior hospital stay; any prior ICU or CCU utilization; and a count of the prior hospital discharges in the prior year. The TEP particularly favored accounting for the number of previous hospital stays in risk adjustment.

When constructing the risk adjustment model, we considered the removal of non-statistically significant HCC and surgical categories. Using FY2018 data, we compared our current risk adjustment model to a revised model in which we removed three surgical categories and 26 HCC categories as they were not consistently statistically significant across three years of data. Results for this analysis are captured in section **2b.24**.

References:

[1] Levitt, A. T., Freeman, C., Schwartz, C. R., McMullen, T., Felder, S., Harper, R., Van, C. D., Li, Q., Chong, N., Hughes, K., Daras, L. C., Ingber, M., Smith, L., & Erim, D. (2019). Final Technical Expert Panel Summary Report: Development of a Healthcare-Associated Infections Quality Measure for the Skilled Nursing Facility Quality Reporting Program. Retrieved from https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/Downloads/SNF-HAI-Final-TEP-Report-7-15-19_508C.pdf.

[Response Ends]

2b.24. Detail the statistical results of the analyses used to test and select risk factors for inclusion in or exclusion from the risk model/stratification.

[Response Begins]

Referencing the analysis described in section **2b.23**., the C-statistics of our current risk adjustment model and the revised model (calculated using FY2018 data) were 0.7202 and 0.7194, respectively. Since these C-statistics are very similar, we ultimately decided not to remove any surgical or HCC categories from our model. All HCCs captured in software version 22 are included in our risk adjustment model. Refer to section **2b.27** for FY2021 C-statistic results for our current risk adjustment model.

[Response Ends]

2b.25. Describe the analyses and interpretation resulting in the decision to select or not select social risk factors.

Examples may include prevalence of the factor across measured entities, availability of the data source, empirical association with the outcome, contribution of unique variation in the outcome, or assessment of between-unit effects and within-unit effects. Also describe the impact of adjusting for risk (or making no adjustment) on providers at high or low extremes of risk.

[Response Begins]

We designed the SNF HAI measure before the conclusion of the 2017-2021 NQF social risk factor trial. Therefore, when designing the measure, we followed previous NQF guidance, including consideration of forgoing adjustment by social risk factors to ensure that disparities in care are not masked. After the conclusion of the NQF social risk factor trial, we conducted two analyses to determine the appropriateness of adjusting for social risk factors (SRFs) (see below). Both analyses show that risk adjusting the SNF HAI measure for SRFs is inappropriate.

Analysis 1 – SRF Model Fit:

We constructed a separate SNF HAI risk adjustment model to determine whether the measure should adjust for social risk factors (SRFs). This model mirrors that of the current measure; however, it risk adjusts for Medicare/Medicaid dual-enrollment status and race/ethnicity. Results indicate that both models have the same C-statistic suggesting similar model fit (0.70). Additionally, we observe similar distributions for risk-adjusted SNF HAI rates calculated using the SRF model and those calculated using the current model (means for the SRF model and the current model were 7.62% and 7.63%, respectively). Lastly, the Spearman-Rank and Pearson correlations

between both models are very high (0.99). Overall, we interpret the results of this analysis to indicate that risk adjusting for SRFs makes little difference in SNF HAI measure performance.

Similar model fit and performance distributions between the two aforementioned models is not surprising as we risk adjust for several demographic and clinical conditions that are conceptually important to include in the model and correlated with the SRFs we tested. For example, this measure risk adjusts for diabetes mellitus if it appears as a principal diagnosis on the resident's prior proximal hospital claim. Several social determinants of health cause certain populations (e.g., the Black population) to experience higher prevalence of diabetes in comparison to others (e.g., the White population)[1]. Since we risk adjust for diabetes (and several other clinical conditions), we are likely accounting for some of the social risk that causes some groups to experience higher prevalence over others.

Analysis 2 – Stratification by SRF:

To assess the relationship between social risk factors and SNF HAI provider performance, we used FY2021 data to stratify SNFs meeting the public reporting threshold (25 stays or more) into quintiles based on their proportion of non-White and Medicare/Medicaid dually-enrolled residents. Providers in higher quintiles (i.e., the fifth quintile) had a higher proportion of vulnerable residents than those in lower quintiles (i.e., the first quintile).

The results make clear that differences in performance between high-SRF and low-SRF facilities may reflect provider quality differences that should not be risk adjusted away. Results of the dual stratification show that facilities in the fifth quintile, have a higher mean risk-adjusted HAI rate in comparison to facilities in the first quintile (8.38% and 6.71%, respectively). Similarly, results of the race/ethnicity stratification show that facilities in the fifth quintile, have a higher risk-adjusted HAI rate in comparison to facilities in the first quintile (8.31% and 7.20%, respectively). However, we do not observe a clear difference in performance between facilities caring for high- and low-SRF residents within the same quintile. To further understand differences between within-provider quintiles and across provider quintiles, we compared SRRs within each quintile among the dual and non-dual populations and among race/ethnicity groups. Results of this analysis do not reveal differences in SRR when comparing dual to non-dual populations and non-White to White populations. Therefore, this trend is likely due to differences at the provider-level rather than SRFs at the resident-level. Additionally, it is possible that high-SRF populations often experience difficulties in accessing higher quality facilities. Due to this rationale, we find it premature to risk adjust for SRFs based on dual enrollment status or race/ethnicity at this time, and intend to reevaluate this decision periodically based on the latest empirical evidence.

References:

[1] Xavier Pi-Sunyer, F. (1990). Obesity and Diabetes in Blacks. *Diabetes Care*, 13(11), 1144–1149.
<https://doi.org/10.2337/diacare.13.11.1144>

[Response Ends]

2b.26. Describe the method of testing/analysis used to develop and validate the adequacy of the statistical model or stratification approach (describe the steps—do not just name a method; what statistical analysis was used). Provide the statistical results from testing the approach to control for differences in patient characteristics (i.e., case mix) below. If stratified ONLY, enter “N/A” for questions about the statistical risk model discrimination and calibration statistics.

Validation testing should be conducted in a data set that is separate from the one used to develop the model.

[Response Begins]

To determine the adequacy of our statistical risk model, we analyzed several model fit statistics: C-statistic, Wald test, and risk decile plots. Use of the C-statistic assessed the model's discrimination and judged the model's ability to correctly classify outcomes as negative or positive. The Wald test assessed the null hypothesis that none of the covariates in the model were associated with the SNF HAI measure outcome. The risk decile plot compared expected and predicted HAI, per decile of predicted HAI probability (i.e. decile of predicted patient complexity).

We grouped stays into decile bins based on their predicted HAI value, and calculated the ratio and difference in sum of predicted HAI versus sum of expected HAI for each decile bin.

[Response Ends]

2b.27. Provide risk model discrimination statistics.

For example, provide c-statistics or R-squared values.

[Response Begins]

Using FY2021 data, we observe a C-statistic of 0.70 suggesting good model fit. Wald test results (23,027.39; $p < 0.0001$) soundly reject the null hypothesis that no covariates have a statistically significant effect.

[Response Ends]

2b.28. Provide the statistical risk model calibration statistics (e.g., Hosmer-Lemeshow statistic).

[Response Begins]

See section **2b.29** for risk decile results.

[Response Ends]

2b.29. Provide the risk decile plots or calibration curves used in calibrating the statistical risk model.

The preferred file format is .png, but most image formats are acceptable.

[Response Begins]

The risk-adjusted HAI rate for each SNF is the product of the standardized risk ratio (SRR) for a given SNF and the national average observed rate of HAIs for all SNFs. The SRR is a provider-level ratio that measures excess HAIs by comparing the predicted to expected number of HAIs. This ratio measures the degree to which the number of HAIs that are acquired during SNF care and result in hospitalization are higher or lower than what would otherwise be expected. The analysis captured in **Table 7** assesses whether the “predicted number” of HAIs systematically deviates from the “expected number” for the same residents at a SNF whose quality is at the national average level. Since the ratio of the sum of predicted HAI over the sum of expected HAI is close to one, there is no evidence of excessive deviation of the predicted number of HAIs from the expected number of HAIs across patients at different risk levels for HAIs. Additionally, the distribution of the stay-level ratio of predicted over expected HAIs shows significant overlap in SRRs across all ten deciles, suggesting that within each patient risk group there are providers performing better or worse than what is expected or the national baseline.

Table 7. SNF HAI Model Diagnostics - Comparison of Expected and Predicted HAI by Expected HAI Decile (FY2021)

Deciles of Expected Probability of HAI	Number of SNF stays	Sum of Predicted HAI	Sum of Expected HAI	Sum of Predicted / Sum of Expected	Distribution of Stay-level Predicted/Expected Ratio					
					Mean	P10	P25	P50	P75	P90
1	119,645	3,354.4	3,462.1	0.97	0.97	0.66	0.78	0.92	1.11	1.33
2	119,644	4,610.8	4,677.4	0.99	0.99	0.68	0.80	0.94	1.13	1.34

Deciles of Expected Probability of HAI	Number of SNF stays	Sum of Predicted HAI	Sum of Expected HAI	Sum of Predicted / Sum of Expected	Distribution of Stay-level Predicted/Expected Ratio					
3	119,642	5,444.3	5,464.5	1.00	1.00	0.70	0.81	0.95	1.14	1.35
4	119,646	6,225.8	6,206.9	1.00	1.00	0.70	0.81	0.96	1.15	1.36
5	119,644	7,050.2	6,990.0	1.01	1.01	0.71	0.82	0.97	1.16	1.36
6	119,644	7,956.9	7,866.5	1.01	1.01	0.71	0.82	0.97	1.16	1.36
7	119,646	9,062.4	8,912.3	1.02	1.02	0.72	0.83	0.98	1.17	1.37
8	119,644	10,509.8	10,279.5	1.02	1.02	0.72	0.84	0.99	1.17	1.37
9	119,644	12,746.6	12,385.1	1.03	1.03	0.73	0.85	1.00	1.18	1.37
10	119,644	20,101.0	19,035.0	1.06	1.05	0.76	0.88	1.03	1.20	1.38

[Response Ends]

2b.30. Provide the results of the risk stratification analysis.

[Response Begins]

Not applicable, as this measure does not stratify in public reporting and confidential feedback reports.

[Response Ends]

2b.31. Provide your interpretation of the results, in terms of demonstrating adequacy of controlling for differences in patient characteristics (i.e., case mix).

In other words, what do the results mean and what are the norms for the test conducted?

[Response Begins]

As mentioned in section **2b.20**, we control for differences in resident case-mix through our hierarchical logistic risk adjustment model. The model captures provider-specific effects which accounts for the clustering of patients within the same facility and captures variation in measure outcome across SNFs. Results of our model fit analysis, presented in section **2b.27** show that the HAI model can accurately predict HAI cases while controlling for differences in resident case-mix.

[Response Ends]

2b.32. Describe any additional testing conducted to justify the risk adjustment approach used in specifying the measure.

Not required but would provide additional support of adequacy of the risk model, e.g., testing of risk model in another data set; sensitivity analysis for missing data; other methods that were assessed.

[Response Begins]

N/A

[Response Ends]

3. Feasibility

Extent to which the specifications including measure logic, require data that are readily available or could be captured without undue burden and can be implemented for performance measurement.

3.01. Check all methods below that are used to generate the data elements needed to compute the measure score.

[Response Begins]

[Response Ends]

3.02. Detail to what extent the specified data elements are available electronically in defined fields.

In other words, indicate whether data elements that are needed to compute the performance measure score are in defined, computer-readable fields.

[Response Begins]

[Response Ends]

3.03. If ALL the data elements needed to compute the performance measure score are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using data elements not from electronic sources.

[Response Begins]

[Response Ends]

3.04. Describe any efforts to develop an eCQM.

[Response Begins]

[Response Ends]

3.06. Describe difficulties (as a result of testing and/or operational use of the measure) regarding data collection, availability of data, missing data, timing and frequency of data collection, sampling, patient confidentiality, time and cost of data collection, other feasibility/implementation issues.

[Response Begins]

[Response Ends]

Consider implications for both individuals providing data (patients, service recipients, respondents) and those whose performance is being measured.

3.07. Detail any fees, licensing, or other requirements to use any aspect of the measure as specified (e.g., value/code set, risk model, programming code, algorithm),

Attach the fee schedule here, if applicable.

[Response Begins]

[Response Ends]

4. Usability and Use

Extent to which potential audiences (e.g., consumers, purchasers, providers, policy makers) are using or could use performance results for both accountability and performance improvement to achieve the goal of high-quality, efficient healthcare for individuals or populations.

Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making.

NQF-endorsed measures are expected to be used in at least one accountability application within 3 years and publicly reported within 6 years of initial endorsement, in addition to demonstrating performance improvement.

4a.01. Check all current uses. For each current use checked, please provide:

- Name of program and sponsor
- URL
- Purpose
- Geographic area and number and percentage of accountable entities and patients included
- Level of measurement and setting

[Response Begins]

Public Reporting

[Response Ends]

4a.02. Check all planned uses.

[Response Begins]

[Response Ends]

4a.03. If not currently publicly reported OR used in at least one other accountability application (e.g., payment program, certification, licensing), explain why the measure is not in use.

For example, do policies or actions of the developer/steward or accountable entities restrict access to performance results or block implementation?

[Response Begins]

[Response Ends]

4a.04. If not currently publicly reported OR used in at least one other accountability application, provide a credible plan for implementation within the expected timeframes: used in any accountability application within 3 years, and publicly reported within 6 years of initial endorsement.

A credible plan includes the specific program, purpose, intended audience, and timeline for implementing the measure within the specified timeframes. A plan for accountability applications addresses mechanisms for data aggregation and reporting.

[Response Begins]

[Response Ends]

4a.05. Describe how performance results, data, and assistance with interpretation have been provided to those being measured or other users during development or implementation.

Detail how many and which types of measured entities and/or others were included. If only a sample of measured entities were included, describe the full population and how the sample was selected.

[Response Begins]

[Response Ends]

4a.06. Describe the process for providing measure results, including when/how often results were provided, what data were provided, what educational/explanatory efforts were made, etc.

[Response Begins]

[Response Ends]

4a.07. Summarize the feedback on measure performance and implementation from the measured entities and others. Describe how feedback was obtained.

[Response Begins]

[Response Ends]

4a.08. Summarize the feedback obtained from those being measured.

[Response Begins]

[Response Ends]

4a.09. Summarize the feedback obtained from other users.

[Response Begins]

[Response Ends]

4a.10. Describe how the feedback described has been considered when developing or revising the measure specifications or implementation, including whether the measure was modified and why or why not.

[Response Begins]

[Response Ends]

4b.01. You may refer to data provided in Importance to Measure and Report: Gap in Care/Disparities, but do not repeat here. Discuss any progress on improvement (trends in performance results, number and percentage of people receiving high-quality healthcare; Geographic area and number and percentage of accountable entities and patients included). If no improvement was demonstrated, provide an explanation. If not in use for performance improvement at the time of initial endorsement, provide a credible rationale that describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

[Response Begins]

[Response Ends]

4b.02. Explain any unexpected findings (positive or negative) during implementation of this measure, including unintended impacts on patients.

[Response Begins]

[Response Ends]

4b.03. Explain any unexpected benefits realized from implementation of this measure.

[Response Begins]

[Response Ends]

5. Comparison to Related or Competing Measures

If a measure meets the above criteria and there are endorsed or new related measures (either the same measure focus or the same target population) or competing measures (both the same measure focus and the same target population), the measures are compared to address harmonization and/or selection of the best measure.

If you are updating a maintenance measure submission for the first time in MIMS, please note that the previous related and competing data appearing in question 5.03 may need to be entered in to 5.01 and 5.02, if the measures are NQF endorsed. Please review and update questions 5.01, 5.02, and 5.03 accordingly.

5.01. Search and select all NQF-endorsed related measures (conceptually, either same measure focus or target population).

NOTE: If there are no related measures, please select N/A.

(Can search and select measures.)

[Response Begins]

[Response Ends]

5.02. Search and select all NQF-endorsed competing measures (conceptually, the measures have both the same measure focus and target population).

NOTE: If there are no competing measures, please select N/A.

(Can search and select measures.)

[Response Begins]

[Response Ends]

5.03. If there are related or competing measures to this measure, but they are not NQF-endorsed, please indicate the measure title and steward.

[Response Begins]

[Response Ends]

5.04. If this measure conceptually addresses EITHER the same measure focus OR the same target population as NQF-endorsed measure(s), indicate whether the measure specifications are harmonized to the extent possible.

[Response Begins]

[Response Ends]

5.05. If the measure specifications are not completely harmonized, identify the differences, rationale, and impact on interpretability and data collection burden.

[Response Begins]

[Response Ends]

5.06. Describe why this measure is superior to competing measures (e.g., a more valid or efficient way to measure quality). Alternatively, justify endorsing an additional measure.

Provide analyses when possible.

[Response Begins]

[Response Ends]

Appendix

Supplemental materials may be provided in an appendix.:

Contact Information

Measure Steward (Intellectual Property Owner): Centers for Medicare & Medicaid Services

Measure Steward Point of Contact: Natanov, Rebekah, rebekah.natanov@cms.hhs.gov

Measure Developer if different from Measure Steward: Acumen, LLC

Measure Developer Point(s) of Contact: Acumen, LLC, CCSQ PAC QRP Support, ccsq-pacqrp-support@acumenllc.com

Additional Information

1. Provide any supplemental materials, if needed, as an appendix. All supplemental materials (such as data collection instrument or methodology reports) should be collated one file with a table of contents or bookmarks. If material pertains to a specific criterion, that should be indicated.

[Response Begins]

[Response Ends]

2. List the workgroup/panel members' names and organizations.

Describe the members' role in measure development.

[Response Begins]

[Response Ends]

3. Indicate the year the measure was first released.

[Response Begins]

[Response Ends]

4. Indicate the month and year of the most recent revision.

[Response Begins]

[Response Ends]

5. Indicate the frequency of review, or an update schedule, for this measure.

[Response Begins]

[Response Ends]

6. Indicate the next scheduled update or review of this measure.

[Response Begins]

[Response Ends]

7. Provide a copyright statement, if applicable. Otherwise, indicate "N/A".

[Response Begins]

[Response Ends]

8. State any disclaimers, if applicable. Otherwise, indicate "N/A".

[Response Begins]

[Response Ends]

9. Provide any additional information or comments, if applicable. Otherwise, indicate "N/A".

[Response Begins]

[Response Ends]